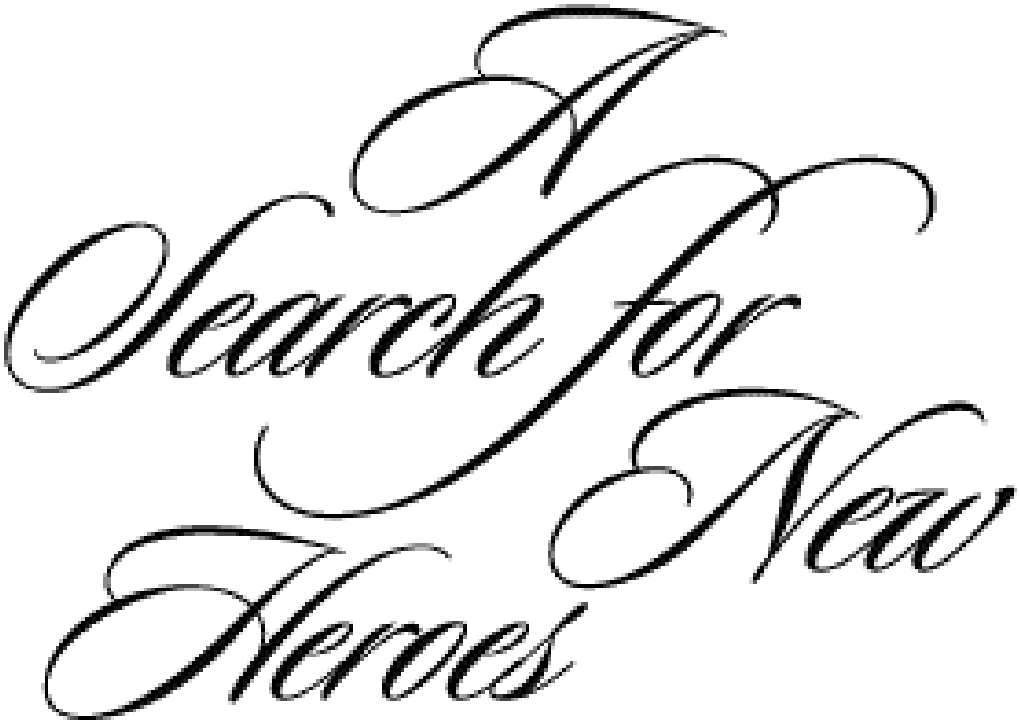

The 2000 Computerworld Smithsonian Program

2000 Computerworld Smithsonian Awards

A Search For New Heroes

ABOUT THE PROGRAM

The Computerworld Smithsonian Program

The Computerworld Smithsonian Program brings together the Chairmen or Chief Executive Officers of one hundred leading information technology companies from around the world to help the Smithsonian Institution's National Museum of American History document a revolution in progress - the information technology revolution that is now producing, and continues to produce, the "information age."

Established in 1988, the Program is dedicated to identifying the men and women, organizations and institutions that are leading the information technology revolution, and to capturing the history of their impact on their world on-line in the written word, photography, video, and other appropriate media.

Primary source materials generated by this on-going "search for new heroes" are preserved, protected, and made available to both scholars and the general public as part of The Computerworld Smithsonian Program's Archives On-Line (http://www.cwsmithsonian.org), the Permanent Research Collections of the Smithsonian Institution, and through a variety of other public educational resources and activities.

In June of each year the most outstanding of the extraordinary organizations and individuals identified by the program are singled out for special recognition. Institutions are recognized as worldwide finalists and as recipients of Computerworld Smithsonian Awards. A series of Information Technology Leadership Awards honors individuals. **A Search for New Heroes**

The National Museum of American History

Americans share a collective history made up of our individual backgrounds and legacies. The National Museum of American History is the steward of this history, and we have extraordinary collections of more than 3 million objects that help define the American experience - and explore the American Identity.

At the National Museum of American History, we strive to tell the diverse stories of the American Experience. In the telling, we begin to recognize common experiences that are shared among different cultures and communities. We hope that by recounting America's stories - and by exploring the question, "What is the American Identity?" - we illuminate this kindred connection and prompt visitors to reflect on their roles within the American experience.

In 1999, the Star-Spangled Banner Preservation Project and the newly opened Communities in a Changing Nation exhibition began the first phase of a multi-year strategic plan for the Museum. The second phase includes the Nina and Ivan Selin Welcome Center, American Legacies and an exhibition in our Ipswich house - each of which will open during the 2000-02 time period - thus continuing the exploration of American Identity from very different perspectives. In November 2000, the Museum will open a major exhibition on the American presidency as the nation elects the first American president for the 21st century.
Documenting the American experience is a daunting task, but chronicling the fast paced information technology revolution is an even bigger challenge.

And thus the Computerworld Smithsonian Awards began, more than ten years ago. We were extremely fortunate that Pat McGovern, Chairman and CEO of International Data Group, invited a group of some one hundred information technology leaders to assist us in recognizing and documenting how institutions, organizations and individuals are applying new information age tools to affect positive change throughout the world.
The Museum collects the Case Studies provided by the Computerworld Smithsonian Laureates and, best of all, people all over the world can visit our On-line Archives and learn about our program's Laureates and their diverse projects.

We are grateful to Pat McGovern and the Computerworld Smithsonian's Chairmen's Committee for their sustained support of our mission. Through this public-private partnership we have been able to record history in real time -- as it happens - while we continue to stimulate the very spirit of innovation and creativity.
Let me also congratulate the year 2000 Laureates and offer my special appreciation. Your work will contribute to the history of information technology and to better understanding of the American Identity.

History helps us to put things in perspective, and it gives us a context for understanding both our individual and collective place in a perpetual evolution.

2000 Computerworld Smithsonian Awards

A Search For New Heroes

Amerada Hess Corporation

Application :	USEP Finance Reengineering
Category:	Environment, Energy & Agriculture
Status:	Laureate
Nominated By:	SAP America, Inc.

Implementation of an enterprise resource planning system catalyzes a series of organizational changes that have bolstered an oil exploration company's competitive effectiveness and lessened its dependence on an inefficient hierarchical posture.

Amerada Hess Corporation
LONG SUMMARY

Please describe your application and the information technology used in conjunction with it. Please keep your language simple and your explanations non-technical.

The Amerada Hess U.S. Exploration & Production Financial Reengineering Project began in mid-1995 as one component of a new corporate strategic vision. That vision challenged the unit to become a leading independent in each of its business segments. Other vision components targeted the restructuring of the corporation's asset base, both upstream in the exploration and production businesses and downstream in the refining and marketing businesses.

These aspirations were born from a strong will to improve Amerada Hess' performance. For years, AHC's performance had been in the bottom quartile of its peer group. Investment community returns were minimal; sustained profitability elusive. Market price projections for core energy products offered no relief. The competitive landscape added pressure as larger companies exercised scale advantages, and smaller companies exercised flexibility advantages. Clearly, USEP was "between a rock and a hard place" - a mezzo major, as one strategy consulting firm later described.

Amerada Hess' USEP business competes in the highly commoditized wholesale oil and natural gas supply business, where long-term viability is based solely on costs to find, develop, and produce products which cannot be differentiated from competitors' products. Needle-like focus on value-added activities is crucial to ensure the firm's financial capital and intellectual capital are deployed effectively.

Like many industrial companies that matured during the 20th century, Amerada Hess' operating culture and organization model were deeply rooted in principles of division of labor through specialization. This mechanistic model, with narrowly defined jobs, grouped work tasks into small units where similarly skilled people focused on a few steps in a much larger process. Multiple layers of management essentially provided coordinating functions, adding to bureaucratic rigidity. AHC employees regularly characterized our company as a network of "checkers, checking the work of other checkers".

Our business processes, like those found in most U.S. businesses, were decades old and focused on "control" of business transactions - an operating strategy that succeeded during less dynamically competitive times. Our operations were internally oriented - benchmarking against competitor performance was not a valued practice.

The Amerada Hess presented here is a picture typical of U.S. business culture history. Over time, a quilt of computer applications had been custom-developed for this segmented, functionally based organization, adding comfort to and further entrenching the operating culture. Our then current information technology tools electronically interfaced in ways that required job designs heaped with trouble-shooting, data reconciliation, and other non-value adding activities.

Consequently, integral to achieving the new vision was the replacement of antiquated financial systems. After selecting SAP's enterprise resource planning (ERP) tools, and recognizing that we would be the first company to implement SAP's highly integrated Oil and Gas E&P software suite, the need surfaced to study and possibly redesign our business processes. These prospects not only promised watershed changes in our business life, they also required planning that would ensure a return on the investment at and beyond project completion.

To support the large financial commitment and to establish clear project direction, a business case defining time and money limits and expected benefits was developed. The expected benefits were exciting. In hindsight, the known and unknown difficulties that would impact achievement of these benefits were clearly under-appreciated.

Notwithstanding these hurdles, the project succeeded by two critical measures - delivery 1) of new processes, work groups, training, and information systems; and 2) on time and under budget. Doing this positioned USEP to achieve the business benefits.

The project management process was simple but not easy to execute. We succeeded however, at learning, adapting, and applying a robust integrated change methodology. This required a project team environment rich with recognition of the value of all organizational systems necessary to direct and operate a business. This environment was also rich in recognizing the potential value gain from aligning strategic direction with organizational capabilities, and then aligning the various capability systems with each other.

Seeing these values and alignment needs led to a project identity crisis. On the one hand the need for this was obvious - isn't it entirely rational that when AHC's business strategy changes, its business processes may change to support new goals, and in turn employee work content would change, and hence the capabilities and skills required might change? But on the other hand, this project was simply the financial information systems component of the corporation's strategic change program - it was chartered only to replace the financial systems that were in such disarray.

Or was it?

The wild card turned out to be that executive management expected accountability to the business case. While this business case included I.T. cost reductions, the lion's share was to be improvements in business performance - hence changes in how the daily business would be transacted. Over time, a simple but key concept emerged - the expected benefits may be "I.T. enabled", but they would not be "I.T. delivered". "Build it, and they will come" just simply would not work on our "field of dreams".

Change resistance was a major immediate and long lasting hurdle to project success. Project leaders understood a firm top management commitment. Conveying that commitment to the organization challenged project management at each step due largely to the unclear project identity. Early and lingering questions challenged both the "breadth" of the project (what was "in scope" and what was "out of bounds") and the "depth" of the reengineering effort (the types of change that were "in scope").

An integrated communication and training plan, unlike any the USEP division had ever experienced, was conceived and executed. The plan stood on the premise that at the individual employee level, change delivered by this project would be dramatic. Knowing that each employee making the journey would have a personal change "acceptance/resistance roadway" (and all roads pass through the "valley of despair"), organization readiness activities were mapped to create several routes for this.

Communications focused on the whole person to help each employee through the coming changes. Communication content and frequency was to be key in helping employees understand their personal perceptions of change (i.e., change is good, change is bad) ... before asking them to attend process and system training held just days before system "go live". By helping cast positive perceptions of change (to personalize it's values and results), the project team poured the foundation for open, relaxed minds when employees arrived in class ... allowing focus on learning the "technical" changes.

Communication involved more than providing employees with "coming event" information however. Given, spreading news of events and new software functionality in newsletters and in interactive workshop sessions is a "must do" in projects of this nature. Single approach solutions however, are necessarily limited in impact they can have. Based on such principles as 1) active participation engages employees in "change" and 2) synergy can produce huge dividends in final products (and ongoing improvement efforts), the project team expanded its work envelope to develop representatives of the user communities as "power users". These "power users" became key liaisons, sharing intimate business process perspectives with the project team and sharing new design details with their peers in the user communities.

As with all large organization change efforts, many personal decisions were made - there were believers, there were leaders, and there were followers. And, some chose to simply not make the journey.

As painful and difficult as the trek has been, we are still only beginning. Having implemented new business processes and policies, new operating strategies, new people systems, and a new I.T. infrastructure, our well-positioned E&P Services organization is prepared for very aggressive competition "on the margin" as it goes after new business. Benchmark comparisons reflect the organization's performance improvement from fourth quartile in 1995 (pre-project) to third quartile in 1999 (first year post-project), with good momentum to move into the second quartile among our peer group in the year 2000.

Our new "process owners" have aligned their operating strategies to their key clients' business strategies, ensuring good "fit for purpose". Process team members more clearly understand their intended process outputs; how they add value to the organization; how they stand relative to their competition.

The fact that this I.T.-leveraged business reengineering project came in "on time, under budget", and also delivered its intended business results sets this project apart from the hundreds of other I.T. or business process redesign projects conducted each year. This measure of success is statistically improbable by itself, notwithstanding the achievement of being the first to implement the predecessor to SAP's Oil and Gas E&P solution.

Since completion of the first phase of this project, change initiatives have taken shape in all areas of Amerada Hess Corporation - from other E&P businesses ('the upstream') to its downstream refining and marketing businesses, with redefinition of corporate center functions and processes capping the list. Success is already realized in some of these areas. This project, unbeknownst to its team members, had become the pioneer and model for change at Amerada Hess Corporation.

While guiding this project often seemed like navigating in a fog, two insights beamed brightly through:

1. Organizations are perfectly designed to get the results they get.
2. Without leadership, all these other, related things are simply interesting.

Amerada Hess Corporation
ORIGINALITY

What are the exceptional aspects of your project? Is it original? How? Is it the first, the only, the best or the most effective application of its kind? How did the project evolve? What is its background?

Even aside from the fact that this project was the first to implement SAP's new Oil and Gas E&P solution, there are at least four facets that should stand for applause. The first was described in the previous section - the use of interactive data marts accessed from anywhere within our company's intranet using a standard web browser. This approach has dramatically reduced costs and cycle time related to internal reporting, while also increasing the quality and timeliness of management information to our operating units ... warp speed by prior standards. Distributing and storing key information in data marts greatly facilitates the performance management learning curve, as we continue learning what information is readily available in the new systems, how it can be used to run our businesses, and how it relates to our key performance indicators.

The second area noteworthy as an innovation was our uniquely (as far as we know) integrated approach to preparing employees for the process and system training. We recognized that these activities are tightly related to the individual's relative position on his or her own "change" curve. By 1) addressing the individuals' needs for project- and change-related information well in advance of the formal training classes, and 2) leveraging the "power users" developed within the user communities, we achieved a much higher level of success during training as verified at and beyond "go live".

Applying similar technology as the online data marts (internet, accessible with standard

browsers), the Exploration and Production Information Center (EPIC) was developed. EPIC organizes, codifies, and disseminates the accumulated knowledge of new business process details, software task instructions, and business policies. It is designed in a "whole brain" perspective, in that multiple presentation styles (graphics, text, charts, etc.) are used to ensure employees are able to get information in the manner in which they prefer. This "self help" paperless documentation system provided the "explicit" knowledge content in our formal training classes, while project team members provided the "tacit" content - embellishing detailed task descriptions with real-life examples. Today, EPIC continues to serve a key role in process documentation, and sharing "best practices" across multiple remote field locations.

Notwithstanding these three "best in class" approaches, the one single area which sets this project apart from other similar projects was the criteria under which project issues were resolved.

For example, the project team felt its charge was to deliver a quality product - not unusual in itself. However, this quality product included not only the new I.T. capabilities, but also all other elements of a well-designed organization.

Recognizing the value of alignment and of synergy, the project team chose to deliver an integrated product, sacrificing the "precision" of a perfect I.T. design for the "effectiveness" gains attributable to improvement in several organizational elements. For instance, the "technical system" (business process and related I.T. enablers) was well developed, surpassing the minimum acceptable levels. New designs in the "structural system" (work groups and how they interact) included changing many organizational boundaries, creating new work groups and eliminating others to more fully exploit the new I.T. capabilities and manage the new processes more effectively. Design choices in the "decision making system" were likewise addressed, ensuring that the new work groups were clear on what decisions were to be made, and what information should frame decisions (e.g. key performance metrics) in this new "process" centered organization.

This "integrated change" approach, with attendant emphasis on alignment and balance of all aspects of the desired change is rare among projects with a strong I.T. element, and in fact, is probably a major factor in the failure of many multi-year I.T. leveraged projects.

Amerada Hess Corporation
BENEFITS

Has your project helped those it was designed to help? In your opinion, how has it affected them? What new advantage or opportunity does your project provide to people? Has your project fundamentally changed how tasks are performed? In your opinion, have you developed a technology that may lead to new ways of communicating and processing information? What change might unfold?

A most interesting paradox exists in this type of change project - where a vertically oriented, hierarchical company is flipped horizontally such that the focus becomes business processes. The individual employee often experiences dramatic change, the drama of which increases in proportion with the organization's cultural rigidity. But, it is the individual employee who, if successful in completing the journey, enjoys heightened job satisfaction and more visible (and viable) connections between daily work activities and the value-creating activities of the organization.

For example, many manually intense "accounting entries" in our legacy systems were

automated by this project. "Single entry, of quality information, at the information source" replaced multiple entries. As news of this drastic reduction of work spread, anxieties escalated. For employees willing to make the full journey, these anxieties eased in learning that new jobs would involve more analytic tasks with less clerical content. In effect, manual portions of existing jobs were replaced by the new I.T., while creating a smaller number of more knowledge-intensive job requirements.

Another element given early project attention was the proper application of eight process design principles. The first four principles dealt with traditional process metrics where improvement leads to lower operations costs - i.e. automate manual processes, reduce process time and "hand-offs", reduce the amount of paper generated, and eliminate redundant and non-value added activities. The second four dealt with creating a more satisfying and productive work environment - align controls with the real business needs, establish quality information at the source, empower the "front line", and align performance measures. It's a situation where the first four principles cleaned and prepared the site so the second set of principles could then build the new operating culture.

To give fundamental changes endurance, project management concentrated on building capability not only in the new task-based skills, but also into areas deemed critical to creating and sustaining a new AHC USEP service culture. Process analysis methods developed with this project are now being used in ongoing continuous improvement programs, and also provided the starting point for a "shared services" project in early 1999.

Here emphasis was set on establishing new "commercial" relationships between the service organizations and their primary internal clients. Having achieved that, these new relationships now help ensure that higher-grade buying decisions related to internal services (both cost and level of services) are made in the core business units. In turn, this helps ensure that the organization continually flexes as necessary to align with ever more rapidly changing competitive landscapes, market conditions, and business strategies.

Amerada Hess Corporation
SUCCESS

Has your project achieved or exceeded its goals? Is it fully operational? How many people benefit from it? If possible, include an example of how the project has benefited a specific individual, enterprise or organization. Please include personal quotes from individuals who have directly benefited from your work. Describe future plans for the project.

Results in all business improvement projects must be viewed in two time horizons -- 1) the time encompassing the formal project team structure (one-time project deliverables), and 2) the time occurring after the formal project team structure disbands (business performance improvements). The project's success in balancing these two aspects is considered by many to be the key reason for success.

For context, numerous recent industry studies have shown that multi-year I.T. leveraged projects (such as this) finish late, over budget, or under deliver on desired benefits over 90% of the time.

This project achieved success in each of the key areas.

Project Team Metrics (Project Deliverables - Costs & Scope)

The Phase I "go live" (core SAP Oil & Gas administrative processes) occurred in August 1997, two months ahead of the original schedule and less than ten (10) months after the project team received new SAP software. Experienced project consultants stated that this "SAP go live" was "the smoothest ever" for them. One particularly telling metric - less than two dozen trouble calls were logged in the "call center" the first day. The call center was disbanded altogether within two weeks after go live.

The Phase II project team (predecessor to the new SAP E&P software) also had an aggressive project plan. Phase II accomplished two major feats - it was the "first" project within its competing peer group to "go live", while also accomplishing this in the shortest elapsed time of any competing project.

These time and scope deliverables were completed while also balancing the third leg of the project management triangle - total project expenditures were about 8% under the authorized levels!

Business Performance Metrics (Post Go Live Results)

Internal analysis shows annual benefits exceed the Business Case projections by about 10%. This cost structure change, with new capabilities now being added through continuous improvement programs, has led to a new well-positioned E&P Services organization, preparing it for competition in a very aggressive marketplace.

Even with this absolute level of performance improvement, the overarching objective is to improve relative to our competition. "Early returns" look favorable in this area also. Benchmark comparisons reflect the organization's performance has improved from a baseline of fourth quartile in 1995 (pre-project) to third quartile in 1999 (first year post-project), with good momentum to move into the second quartile among its peer group in the year 2000.

Amerada Hess Corporation
DIFFICULTY

What were the most important obstacles that had to be overcome in order for your work to be successful? Technical problems? Resources? Expertise? Organizational problems? Often the most innovative projects encounter the greatest resistance when they are originally proposed. If you had to fight for funding, it would be useful to include a summary of the objections you faced and how you overcame them.

The technical challenges were indeed immense. Developing a new I.T. infrastructure to be handed over to the user community on a "big bang" approach was unheard of at Amerada Hess. However, this project's biggest challenges came not from the technical difficulties, but from organizational issues - related to the amount of "reengineering" taken on by the project team.

As previously described, this project suffered from an identity crisis early on - was it a financial information systems replacement project, or was it a reengineering project? The difficulties arising from this and the creative tensions produced are evident throughout this Case Study. Internal resistance was a persistent issue for project managers - seeming at times to almost prevail over project goals.

Gaining initial project funding wasn't particularly challenging. Amerada Hess executive

management recognized the strategic need to replace the financial systems. However, by placing accountability to a business case, management set the stage for an unanticipated series of transition management challenges - challenges at the department and work group level, challenges at the individual employee level. Change of this nature becomes very personal.

Individual staff members, especially in the middle management ranks, were hit hard by this change. One by one, each employee affected by this project saw his/her personal view of business process values challenged. In many cases, employees of 15-20 years or more service were confronted with the realization that what they did best and/or the process values they'd inherited from predecessors and held for their careers would no longer be needed by the organization. The personal decision to adapt or leave was made by each and every employee at some point in time. Some left, the vast majority stayed.

One senior manager who chose to leave remarked simply "This may be the right thing for the company, but it's not the right thing for me." On a contrasting note, one who spoke for the majority of employees who chose to stay and redevelop skills stated "The new work is so much different than the old. I was a skeptic at first, but now am beginning to enjoy my new role."

Amerada Hess Corporation
IMPORTANCE

How did information technology contribute to this project? Describe any new technologies used and/or cite innovative uses of existing technology. For example, did you find new ways to use existing technology to create new benefits for society? Or, did you define a problem and develop new technology to solve it? How quickly has your targeted audience of users embraced your innovation? Or, how rapidly do you predict they will? Does your work define new challenges for society? If so, please describe what you believe they may be.

Unquestionably, the single greatest "lever of change" for the Financial Reengineering project was the change in information technology. Replacing narrowly drawn, custom developed, main-frame software applications with process oriented, off-the-shelf, integrated client-server software is a dramatic technical challenge in itself. Further, the new information technology was constantly used to disturb "in the box" responses, to inspire change. Since SAP et al "automated" a substantial portion of the manually intense transaction processing done with legacy information systems, fairly detailed process redesign was required.

Oftentimes, "its integration" is said to be the greatest benefit of implementing enterprise-wide software such as SAP. (Theoretically, value can be extracted by eliminating redundant activities associated with multiple input of the same information into systems used by various business units for related transactions.) However, "its integration" is the very reason process redesign is one of the components needed for success at fully deploying ERP... and fully gaining promised benefits. Regardless of the difficulties involved in doing this, it is an extremely valuable and critical undertaking.

This need to study and redesign our affected business processes allowed the project team to challenge many firmly entrenched business practices. This was uncomfortable to say the least. But quite rewarding as we look in the rear view mirror. One such practice was our internal reporting requirements. Early analysis found that we published internally directed financial reports totaling almost 1,000 pages annually per USEP employee. Reports (paper-based and custom-bound, distributed to many personnel) were generated for practically

every conceivable question executive management might ask, or had asked in the past - "just in case" reporting. This project eliminated over 95% of these reports, while also shifting the culture from a very closed "need to know" distribution criterion, to an open "just in time, online" reporting approach.

How did I.T. support this dramatic change? By facilitating activities in two areas. First, the new information systems created the disturbance needed to get the issues "into scope" and on the negotiating table, where the new performance measures and information requirements could be addressed with lessened resistance. Secondly, the new databases made available clean, consistent data from which standard extracts could be created to feed new, online data marts. These new internet-based data marts provide more consistent information than was previously available - and faster than ever before.

Adopting knowledge-based work principles also meant viewing organizations as "systems", made up of several complex and tightly inter-dependent elements. Initiating change in one element demands a check, and possible change, in all other elements. Analyzing our organization design framework, one could readily see that making such a dramatic change in the information systems (alongside the business process itself, the "technical system") required enormous consideration be given our:

- "structural" system - What new work groups should be formed ... or can changes be made to existing work groups? How should these work groups interact?

- "decision making" system - What decisions will be made by these work groups? What information is required for these decisions?

- "people" system - What new skills and capabilities are required for the new work? What training is required?

It stood to reason then that a successful I.T. "system task" training program would require these other organization elements be considered...thus opening them for challenge.

Helping the user community deal with the changes in processes, information technology, work group structures, performance measures, and the like fell on the broad shoulders of the project's "power users" - representatives of the respective user communities who joined the project a few weeks prior to formal user training. These "power users" proved to be invaluable as they: 1) contributed a reality check for designed processes, 2) provided fresh perspective for critical system testing activities, 3) served as an information conduit from the project team back to his/her work group, 4) became teaching assistants during "go live" training sessions, and 5) acted as the front line of support during the critical first few weeks after "go live".

Overall project concern of employee acceptance of the new processes and I.T. was eased upon "go live", when one employee at a remote field location remarked, "We were so apprehensive at first about this new monster that when we went live, it was not a big deal. Our training had prepared us for what we needed to do."

Another employee in the division office described the excitement of his work group's first interaction with the new system, "Our team made our first entry an event to remember by designating one member to enter the transaction as the group watched. We then all celebrated its success."